

# Biochemicals and Reagents

for Life Science Research

ALPHABETICAL  
LIST

BIOACTIVE  
PEPTIDES

IMMUNO-  
CHEMICALS

MOLECULAR  
BIOLOGY

RBI,  
NEUROSCIENCE,  
SIGNAL  
TRANSDUCTION

TISSUE  
CULTURE

OTHER  
PRODUCT  
GROUPS/USP

EQUIPMENT,  
BOOKS AND  
SUPPLIES

DIAGNOSTIC  
KITS AND  
REAGENTS

PRODUCT  
INDEX



# SIGMA®

# REAGENTS

# TISSUE CULTURE MEDIA AND REAGENTS

## REAGENTS

	UNIT SIZE	US \$
<b>DL-PHENYLALANINE</b>	5 g	8.20
(DL-2-Amino-3-phenyl-propanoic acid)	25 g	15.70
<b>DL-PHENYLALANINE</b>	100 g	38.65
<b>DL-PHENYLALANINE</b>		
Crystalline		
Cell culture tested		
Insect cell culture tested		
[150-30-1] C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> FW 165.2		

<b>DL-PHENYLALANINE</b>	25 g	14.75
(DL-2-Amino-3-phenyl-propanoic acid)	100 g	46.10
<b>DL-PHENYLALANINE</b>		
Crystalline		
Cell culture tested		
Insect cell culture tested		
[63-91-2] C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> FW 165.2		

<b>DL-PHENYLALANINE</b>	50 mg	31.75
(L-α-Lecithin)	100 mg	49.30
<b>DL-PHENYLALANINE</b>	500 mg	180.95
Type III-S: From Soybean	1 g	301.40
Approx. 99%		
Prepared		
Chromatographically		
Chloroform Solution - 100 mg per ml		
Prepared by a modification of the procedure of Singleton, W.S., et al., J. Am. Oil Chem. Soc., 42, 53 (1965).		
Cell culture tested		
R: 45-46-23/24/25-36/37/38		
S: 45-26-36/37/39-23		

<b>DL-PHENYLALANINE</b>	100 g	19.75
Cell culture tested	500 g	40.90
Insect cell culture tested		
[9003-11-6]		

<b>POLYETHYLENE GLYCOL</b>		
See Hybri-Max® Reagents page 1824		
<b>POLYOXYETHYLENE-SORBITAN MONOLAUATE</b>	100 ml	12.65
(Tween 20)	500 ml	17.85
d = 1.1 g/ml	1 gal	56.70
Syrup		
Fatty acid composition:		
Lauric acid approx. 50%; balance primarily myristic, palmitic, and stearic acids.		
Cell culture tested		
[9005-64-5]		

<b>POLYOXYETHYLENE-SORBITAN MONOLEATE</b>	100 ml	12.65
(Tween 80)	500 ml	17.85
d = 1.06-1.10 g/ml	1 gal	56.70
Syrup		
Fatty acid composition:		
Oleic acid approx. 70%; balance primarily linoleic, palmitic, and stearic acids.		
Cell culture tested		
[9005-65-6]		
R: 40 S: 36		

<b>POLY(2-HYDROXYETHYL METHACRYLATE)</b>	10 g	67.45
(Poly-HEMA)	25 g	134.70
Used to inhibit cell adhesion to growth surfaces in culture vessels		
Cell culture tested		
See Technical Section for use instructions		
page 1849		
[25249-16-5]		
R: 36/37/38 S: 26-28		

**ODIUM SALT**  
yes and Indicators page 1796

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## CELL CULTURE TESTED BIOCHEMICALS

PRODUCT NUMBER	UNIT SIZE	US \$
<b>P 4905</b>	25 g	14.75
<b>DL-PHENYLALANINE</b>		
(DL-2-Amino-3-phenyl-propanoic acid)		
Crystalline		
Cell culture tested		
Insect cell culture tested		
[150-30-1] C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> FW 165.2		

<b>P 5030</b>	25 g	15.80
<b>DL-PHENYLALANINE</b>	100 g	46.10
(DL-2-Amino-3-phenyl-propanoic acid)		
Crystalline		
Cell culture tested		
Insect cell culture tested		
[63-91-2] C <sub>9</sub> H <sub>11</sub> NO <sub>2</sub> FW 165.2		

<b>P 3782</b>	50 mg	31.75
<b>L-α-PHOSPHATIDYLCHOLINE</b>	100 mg	49.30
(L-α-Lecithin)	500 mg	180.95
Type III-S: From Soybean	1 g	301.40
Approx. 99%		
Prepared		
Chromatographically		
Chloroform Solution - 100 mg per ml		
Prepared by a modification of the procedure of Singleton, W.S., et al., J. Am. Oil Chem. Soc., 42, 53 (1965).		
Cell culture tested		
R: 45-46-23/24/25-36/37/38		
S: 45-26-36/37/39-23		

<b>P 1300</b>	100 g	19.75
<b>PLURONIC F-68</b>	500 g	40.90
Cell culture tested		
Insect cell culture tested		
[9003-11-6]		

<b>P 2287</b>	100 ml	12.65
<b>POLYOXYETHYLENE-SORBITAN MONOLAUATE</b>	500 ml	17.85
(Tween 20)	1 gal	56.70
d = 1.1 g/ml		
Syrup		
Fatty acid composition:		
Lauric acid approx. 50%; balance primarily myristic, palmitic, and stearic acids.		
Cell culture tested		
[9005-64-5]		

<b>P 4780</b>	100 ml	12.65
<b>POLYOXYETHYLENE-SORBITAN MONOLEATE</b>	500 ml	17.85
(Tween 80)	1 gal	56.70
d = 1.06-1.10 g/ml		
Syrup		
Fatty acid composition:		
Oleic acid approx. 70%; balance primarily linoleic, palmitic, and stearic acids.		
Cell culture tested		
[9005-65-6]		
R: 40 S: 36		

<b>P 3932</b>	10 g	67.45
<b>POLY(2-HYDROXYETHYL METHACRYLATE)</b>	25 g	134.70
(Poly-HEMA)		
Used to inhibit cell adhesion to growth surfaces in culture vessels		
Cell culture tested		
See Technical Section for use instructions		
page 1849		
[25249-16-5]		
R: 36/37/38 S: 26-28		

PRODUCT NUMBER	UNIT SIZE	US \$
<b>P 5405</b>	250 g	11.65
<b>POTASSIUM CHLORIDE</b>	500 g	18.40
Approx. 99%	1 kg	32.60
Cell culture tested		
Insect cell culture tested		
[7447-40-7] KCl FW 74.55		
R: 36/37/38 S: 26-36		

<b>P 6030</b>	500 g	28.05
<b>POTASSIUM NITRATE</b>	1 kg	47.30
Cell culture tested		
[7757-79-1] KNO <sub>3</sub> FW 101.1		
R: 8-22-36/37/38 S: 17-26-36-7		

<b>P 5655</b>	100 g	12.95
<b>POTASSIUM PHOSPHATE MONOBASIC</b>	500 g	33.65
Anhydrous	1 kg	58.70
Minimum 99.0%		
Cell culture tested		
Insect cell culture tested		
[7778-77-0] KH <sub>2</sub> PO <sub>4</sub> FW 136.1		

<b>PROGESTERONE</b>		
See Hormones page 1785		

<b>P 4655</b>	25 g	16.80
<b>L-PROLINE</b>	100 g	55.75
Crystalline	1 kg	418.50
Hydroxy-L-proline free		
Cell culture tested		
Insect cell culture tested		
[147-85-3] C <sub>5</sub> H <sub>9</sub> NO <sub>2</sub> FW 115.1		

<b>P 2162</b>	1 g	16.85
<b>PROTAMINE SULFATE</b>	5 g	43.85
(Salmine)		
From Salmon		
White amorphous powder		
Cell culture tested		
[53597-25-4]		

<b>PROTEASE</b>		
See Dissociation Reagents page 1770		

<b>P 8340</b>	1 ml	25.95
<b>PROTEASE INHIBITOR COCKTAIL</b>	5 ml	103.95
For use with mammalian cell and tissue extracts		
A mixture of protease inhibitors with broad specificity for the inhibition of serine, cysteine, aspartic and metallo-proteases.		
Contains 4-(2-aminoethyl)benzenesulfonyl fluoride (AEBSF), pepstatin A, trans-epoxysuccinyl-L-leucylamido(4-guanidino)butane (E-64), bestatin, leupeptin, and aprotinin. Contains no metal chelators.		
Supplied as a solution in DMSO. One ml is recommended for the inhibition of proteases extracted from 20 g of bovine liver.		
R: 63-20/21/22-42/43-36/37/38 S: 26-36-23		

<b>P 5780</b>	5 g	11.20
<b>PUTRESCINE</b>	25 g	33.45
(1,4-Diaminobutane; Tetramethylenediamine)		
Dihydrochloride		
Crystalline		
Minimum 98%		
Cell culture tested		
[333-93-7] C <sub>4</sub> H <sub>12</sub> N <sub>2</sub> • 2HCl FW 161.1		
R: 36/37/38 S: 26-36		

<b>P 6155</b>	1 g	10.40
<b>PYRIDOXAL</b>	5 g	28.85
Hydrochloride	25 g	117.70
Crystalline		
Cell culture tested		
Insect cell culture tested		
[65-22-5] C <sub>8</sub> H <sub>9</sub> NO <sub>3</sub> • HCl FW 203.6		
R: 22 S: 36		

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Tissue Culture Media and Reagents

B

<b>SODIUM TUNGSTATE</b>		
Dihydrate	100 g	35.90
ACS Reagent	500 g	111.30
Assay: 99.0 to 101.0%		
Insoluble matter: $\leq 0.01\%$		
Titrateable free base: $\leq 0.02$ meq/g		
Chloride (Cl): $\leq 0.005\%$		
Molybdenum (Mo): $\leq 0.001\%$		
Nitrogen compounds (as N): $\leq 0.001\%$		
Sulfate (SO <sub>4</sub> ): $\leq 0.01\%$		
Heavy metals and iron (as Pb): $\leq 0.001\%$		
[10213-102] Na <sub>2</sub> WO <sub>4</sub> • 2H <sub>2</sub> O FW 329.9		
R: 20/21/22-36 S: 26-36		

**SODIUM TUNGSTATE**  
See: Tungstic Acid, Sodium Salt Page 1048

**SODIUM 12-TUNGSTOPHOSPHATE**  
See: Phosphotungstic Acid, Sodium Salt Page 846

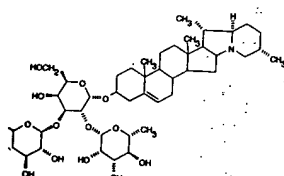
**SODIUM UNDECYLENATE**  
See: Undecylenic Acid, Sodium Salt Page 1053

**SODIUM URATE**  
See: Uric Acid, Sodium Salt Page 1055

<b>ANESOL</b>		
from Tobacco leaves	25 mg	52.30
O <sub>4</sub> (HPLC)	100 mg	153.80
	250 mg	306.45
his C <sub>15</sub> isoprenoid alcohol is the		
most abundant lipid in tobacco leaves. It may be an		
important precursor of the tumorigenic polynuclear		
aromatic hydrocarbons of smoke.		
cf.: Severson, R.F., et al., J. Chromatog., 139, 269		
977.		
[3190-97-1] C <sub>15</sub> H <sub>14</sub> O FW 631.1		

<b>ANIDINE</b>		
from Potato	5 mg	21.60
prox. 98%	10 mg	35.10
	50 mg	136.10
f.: Ripberger, H. and Schreiber,		
The Alkaloids, XIX, 81 (1981).		
[778-4] C <sub>27</sub> H <sub>43</sub> NO FW 397.6		
23/24/25 S: 45-36/37/39-22		

<b>ANINE</b>		
from Potato sprouts	5 mg	43.35
prox. 95%	10 mg	71.35
	50 mg	235.10
isaccharide, consisting of		
rose, galactose and rhamnose, linked to		
midine.		
Buswhay, R.J., Amer. Potato J., 60, 793		
(3).		



iso: α-Chaconine Page 243  
[5202-1] C<sub>25</sub>H<sub>37</sub>NO<sub>15</sub> FW 868.1  
24/25 S: 45-36/37/39

**VE D**  
emissidine Page 329

**M TUBEROSUM LECTIN**  
actins Page 2095

<b>DINE</b>		
d-5-en-3β-ol	100 mg	29.20
c. 99%	250 mg	56.70
[70] C <sub>27</sub> H <sub>43</sub> NO <sub>2</sub>	1 g	165.05
1.6		
4/25 S: 45-36/37/39		

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<b>SOLKETAL</b>	500 g	32.00
[12269-6] (1,2-O-Isopropylidene-rac-		
glycerol; [(±)-2,2-Dimethyl-1,3-dioxolane-		
4-methanol)		
Approx. 97%		
d = 1.07 g/ml		
For possible use in lipid synthesis.		
Aldrich Brand. Formerly Sigma Product I 8380.		
[10079-8] C <sub>6</sub> H <sub>12</sub> O <sub>3</sub> FW 132.2		

<b>SOLVENT BLUE 37</b>	10 g	10.90
Practical Grade	25 g	21.60
[12226-74-3]		

<b>SOLVENT BLUE 38</b>	25 g	19.90
Practical Grade	100 g	40.15
[1328-51-4]		

<b>SOLVENT GREEN 4</b>		
See: Fluoral Yellow 088 Page 455		

<b>SOLVENT RED 27</b>		
See: Oil Red O Page 773		

**SOMATOSTATIN AND RELATED PEPTIDES**  
See: Bioactive Peptides Page 1126  
For cell culture tested Somatostatin See: Tissue Culture Media and Reagents Page 1808

<b>SOMATOTROPIN (STH)</b>		
(Growth Hormone)		
Increases mass of most tissues by increasing cell		
number rather than cell size, mobilizes fat stores		
[9002-72-6]		
<b>From Human Pituitaries</b>	1 vial	148.40
Vial contains approx. 4 I.U. h-GH,		
with 0.1 mg ammonium bicarbonate and 3.5 mg		
mannitol.		
Not assayed by Sigma.		

<b>From Porcine Pituitaries</b>	1 vial	90.55
Vial contains approx. 50 I.U.		
Bioassay not run by Sigma.		

**SOPHORA JAPONICA**  
See: Lectins Page 2096

<b>SOPHOROSE</b>	10 mg	33.60
(2-O-β-D-Glucopyranosyl-	25 mg	66.35
D-glucopyranose; β-D-Glc-[1→2]-	100 mg	220.70
D-Glc)		
Minimum 98%		
[20429-79-2] C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> FW 342.3		

<b>SORBIC ACID</b>		
(2,4-Hexadienoic acid)		
<b>Free Acid</b>	100 g	13.35
Minimum 99.0%	250 g	17.15
See also: Tissue Culture Media and	500 g	25.95
Reagents Page 1836		
[110-44-1] C <sub>6</sub> H <sub>8</sub> O <sub>2</sub> FW 112.1		
R: 20/21/22 S: 26-36		

<b>Potassium Salt</b>	100 g	25.80
SigmaUltra	500 g	59.50
Minimum 99%		
Insoluble matter: <0.1%		
Solubility (1 M in water, 20°C): complete, faint yellow		

Cl: <0.05%	Mg: <0.0005%
SO <sub>4</sub> : <0.05%	Na: <0.1%
Al: <0.0005%	NH <sub>4</sub> : <0.05%
Ca: <0.0005%	P: <0.001%
Cu: <0.0005%	Pb: <0.001%
Fe: <0.0005%	Zn: <0.0005%

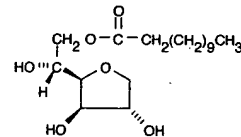
[590-00-1] C <sub>6</sub> H <sub>7</sub> O <sub>4</sub> K FW 150.2		
R: 36/37/38 S: 26-36		

<b>Potassium Salt</b>	100 g	12.25
Minimum 99%	250 g	16.55
[590-00-1] C <sub>6</sub> H <sub>7</sub> O <sub>4</sub> K FW 150.2	500 g	30.95
R: 36/37/38 S: 26-36		

<b>Potassium Salt</b>	100 g	12.25
Minimum 99%	250 g	16.55
[590-00-1] C <sub>6</sub> H <sub>7</sub> O <sub>4</sub> K FW 150.2	500 g	30.95
R: 36/37/38 S: 26-36		

## SORBITAN

<b>S 6635 Monolaurate</b>	250 ml	16.15
(Span 20)	1 liter	49.95
Fatty acid composition: Lauric		
acid (C12:0) approx. 50%; balance primarily myristic		
(C14:0), palmitic (C16:0) and linolenic (C18:3) acids.		



[1338-39-2]

<b>S 6760 Monooleate</b>	250 ml	14.15
(Span 80)	1 liter	45.00
Fatty acid composition: Oleic acid		
(C18:1) approx. 75%; balance primarily linoleic		
(C18:2), linolenic (C18:3) and palmitic (C16:0) acids.		
[1338-43-8]		

<b>S 6885 Monopalmitate</b>	250 g	14.15
(Span 40)	1 kg	45.00
Fatty acid composition: Palmitic		
acid (C16:0) approx. 90%; balance primarily stearic		
acid (C18:0).		
[26266-57-9]		
R: 36/37/38 S: 26-36		

<b>S 7010 Monostearate</b>	250 g	15.10
(Span 60)	1 kg	47.85
Fatty acid composition: Stearic		
acid (C18:0) approx. 50%; balance primarily palmitic		
acid (C16:0).		
[1338-41-6]		

<b>S 3386 Sesquileate</b>	250 ml	14.15
(Arfacel 83)	1 liter	45.00
Fatty acid composition: Oleic acid		
(C18:1) approx. 70%; balance primarily palmitic acid		
(C16:0), stearic acid (C18:0) and linoleic acid		
(C18:2).		
[8007-43-0]		
R: 36/37/38 S: 26-36		

<b>S 7135 Trioleate</b>	250 ml	14.15
(Span 85)	1 liter	45.00
Fatty acid composition: Oleic acid		
(C18:1) approx. 74%; linoleic acid (C18:2) approx.		
7%; linolenic acid (C18:3) approx. 2%; palmitoleic		
acid (C16:1) approx. 7%; balance primarily palmitic		
acid (C16:0).		
[26266-58-0]		
R: 36/37/38 S: 26-36		

<b>S 2028 Tristearate</b>	250 g	14.05
(Span 65)	1 kg	44.55
Fatty acid composition:		
stearic acid (C18:0) approx. 50%; balance primarily		
palmitic acid (C16:0).		
[26658-19-5]		